Regional Traffic Analysis of the I-95/395 HOT Lanes Proposals

Prepared for the September 21, 2005
PPTA Advisory Panel Meeting

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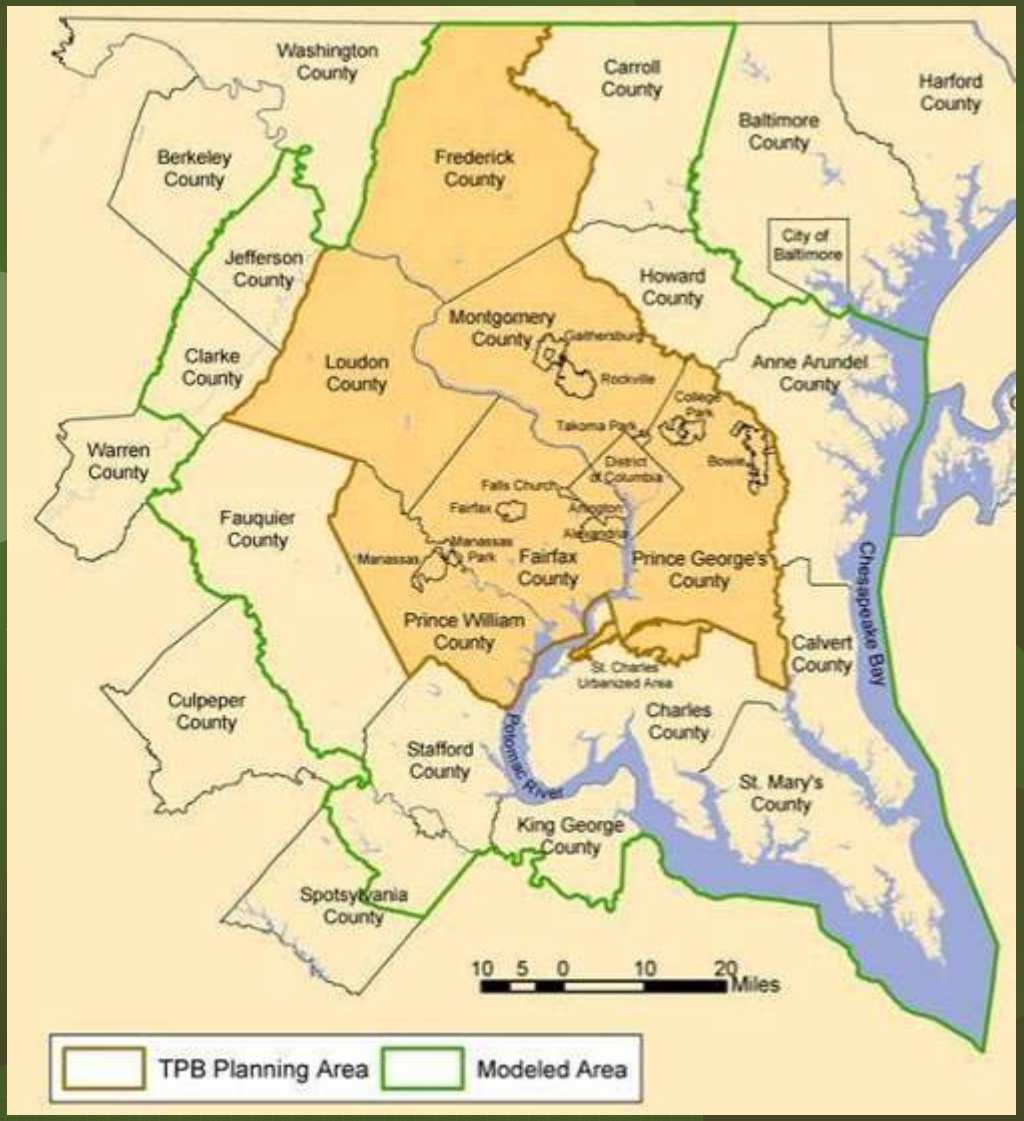
The Washington Region



- Approximately 3,000 square miles
- Includes 4.5 million people and 2.8 million jobs
- The National Capital Region **Transportation Planning Board (TPB)** prepares a financially constrained, 30-year transportation plan for the TPB planning area

TPB Goals for a Regional System of Variably Priced Lanes

Recommended by the TPB Value Pricing Task Force
Adopted by the TPB April, 2005

- *"To guide the regional development of variably priced lanes that work together as a multi-modal system, while addressing the special policy and operational issues raised by the multi-jurisdictional nature of this area"*
  - Seamless connections between jurisdictions
  - Transition from HOV to HOT lanes
  - Integration and financing of transit

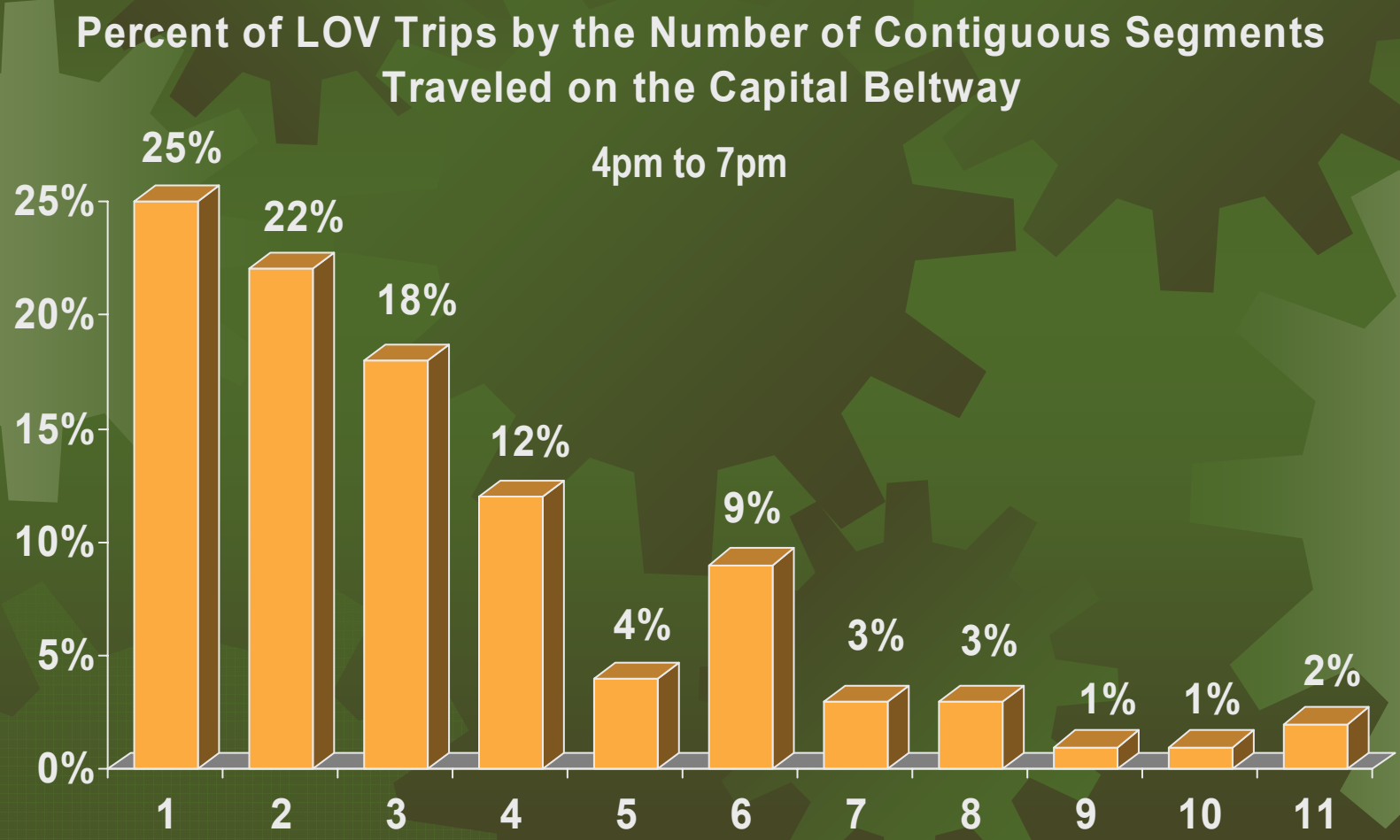
Transit funding implications of conversion from HOV to HOT lanes

- HOV lanes currently count as fixed guideway miles in federal transit funding formulas; HOT lanes do not
- In 2002, FTA modified its policy to allow HOT lanes to count towards fixed guideway miles under the following conditions:
  - **Free flow of transit and HOV vehicles must be maintained**
  - **Tolls revenues must be used for mass transit purposes**

Plans for Capital Beltway HOT Lanes

- 4 new lanes added along 15-mile stretch
- Free for HOV 3+, other drivers pay toll that varies by time of day, segment, and direction
- Included in the draft 2005 plan update
- Results of air quality analysis released September 15

Most cars stay on this section of the Beltway for only 1 or 2 interchanges



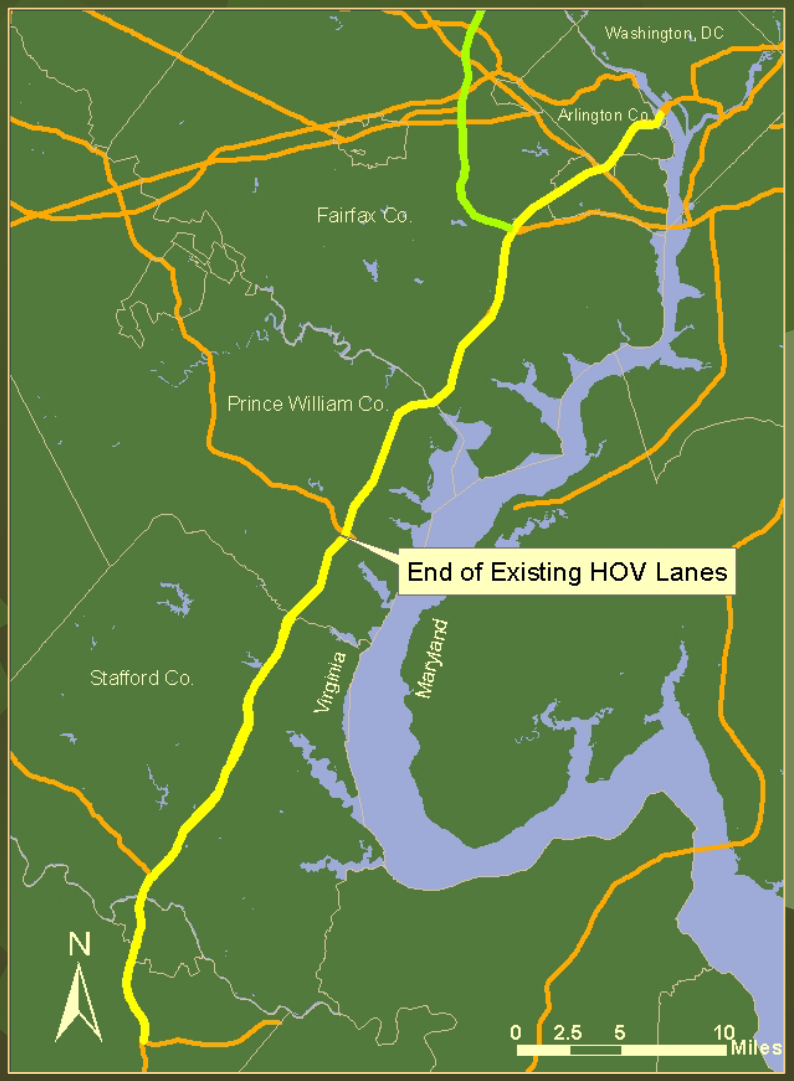
Tolls need to vary by time of day, segment, and direction to ensure high level of service

Peak Period Tolls per Mile
(Baseline: $0.20 peak, $0.15 off-peak)

Segment	Southbound		Northbound	
	AM	PM	AM	PM
1	$0.20	$0.20	$0.20	**$0.60**
⋮	⋮	⋮	⋮	⋮
3	$0.20	**$1.10**	**$0.70**	**$0.60**
⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮
6	$0.20	**$0.40**	$0.20	**$0.60**

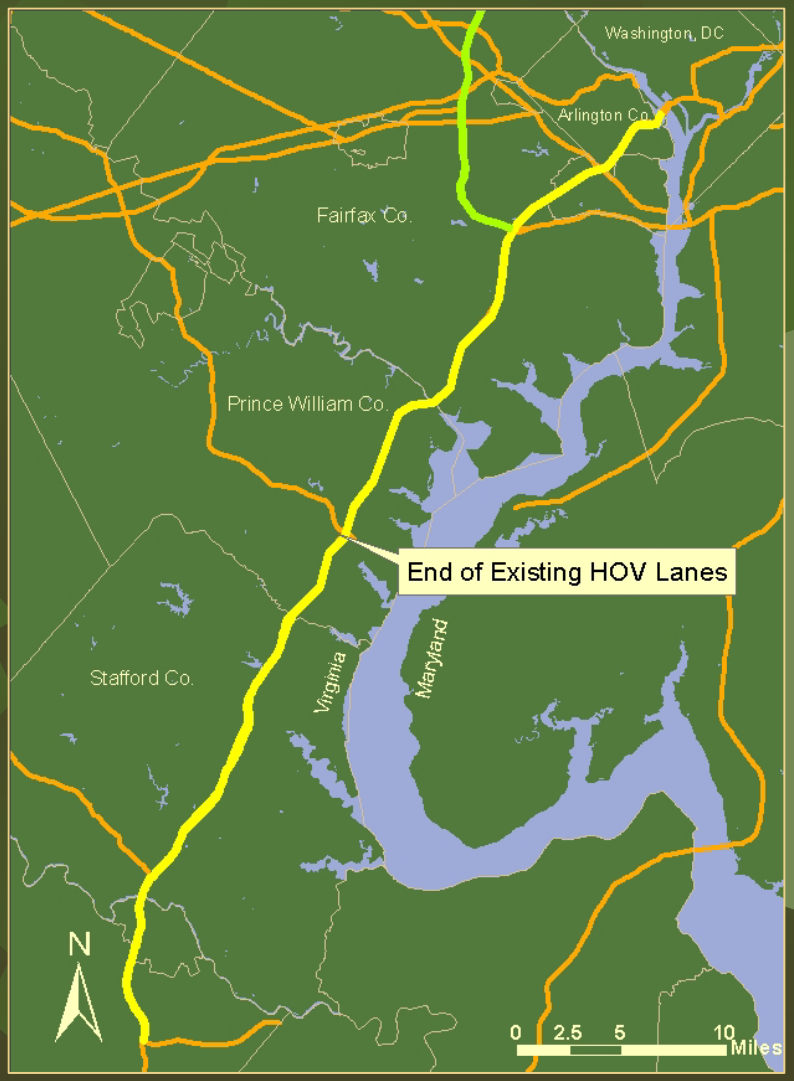
Regional Analysis of I-95/395 HOT Lanes Proposals

- HOT lanes added to regional network, based on Clark/Shirley and Fluor-Transurban proposals
- Widen existing reversible HOV lanes to Dumfries from 2 to 3 lanes (30 miles)
- Extend 2 reversible HOT lanes from Dumfries to Fredricksburg area (20 – 28 miles)
- Free for HOV3+, all other drivers pay toll
  - Proposed peak period tolls range from $0.10 to $0.30 / mile



Regional Analysis of I-95/395 HOT Lanes Proposals

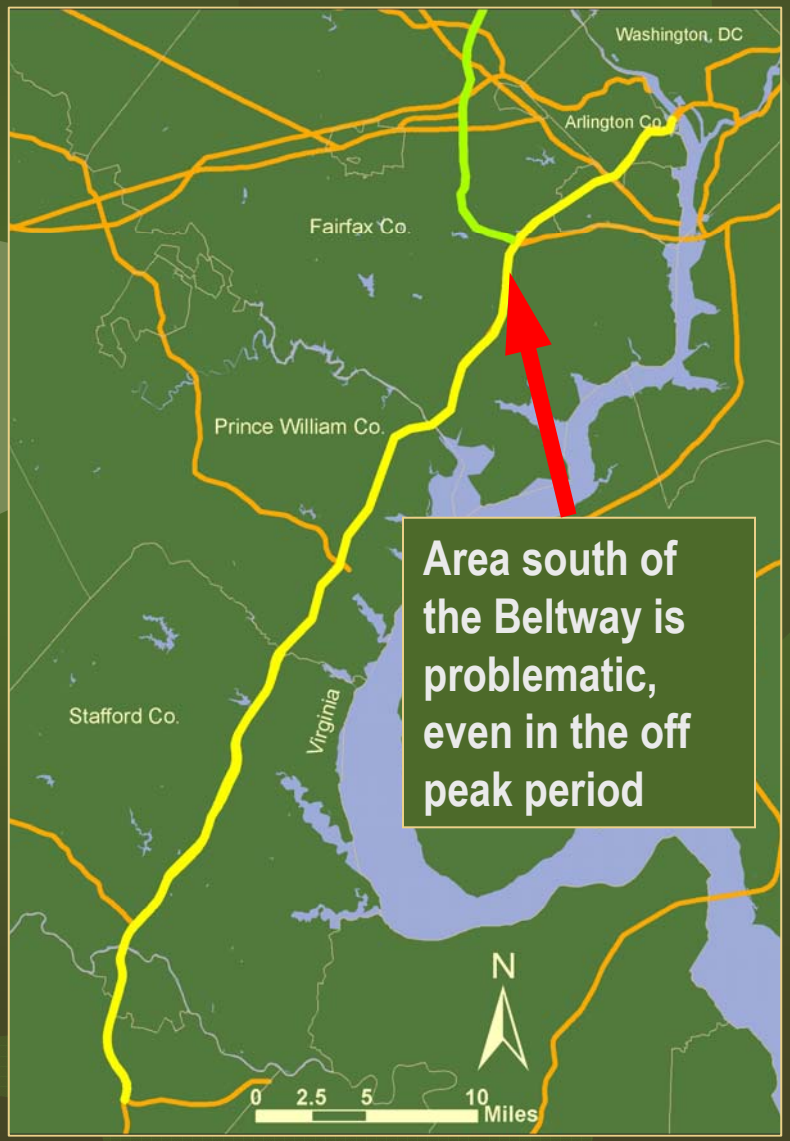
- Beltway HOT lanes included in regional baseline network for 2010
- Based on most recent land use forecasts (Round 7)
  - Does not include impact of BRAC recommendations
  - Does not include any new development resulting from HOT lanes



Potential for Transit

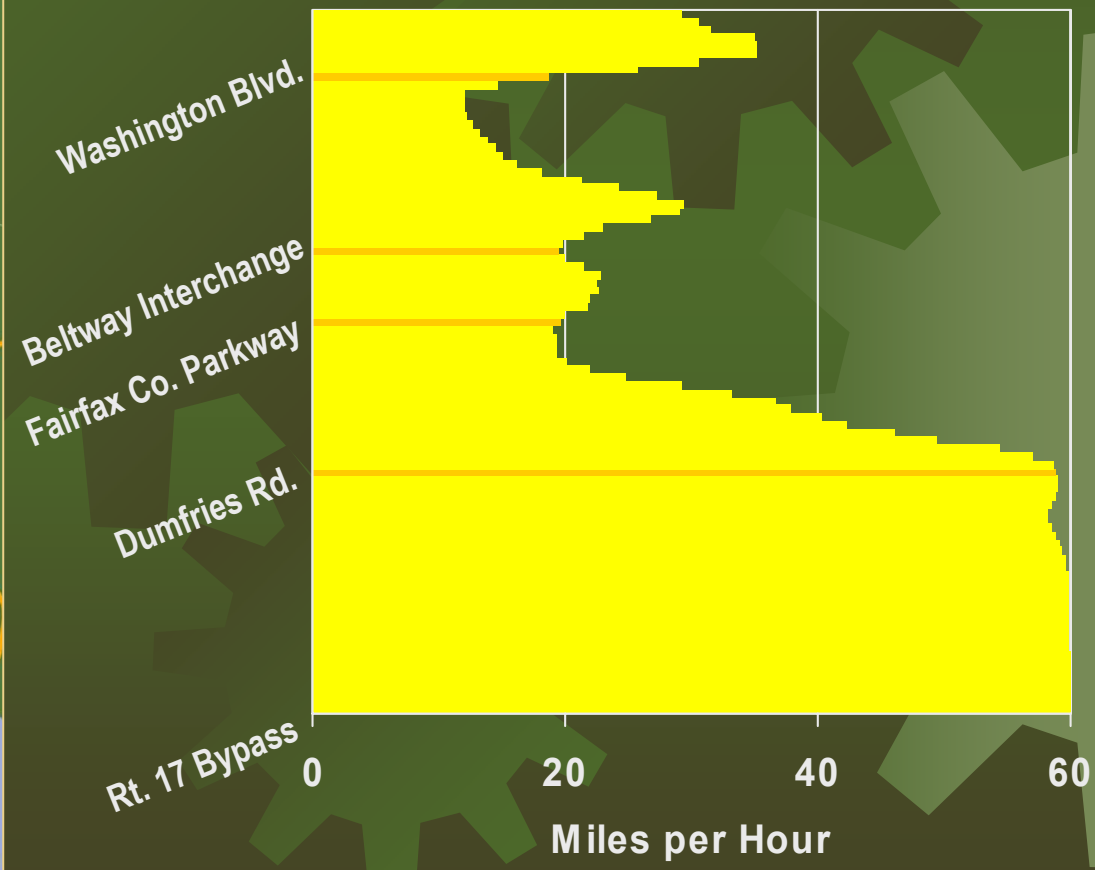
- Analysis assumes currently planned transit for I-95/395
  - Modest improvements to bus service with direct service from Fredericksburg to Tyson's Corner
- Potential exists to greatly increase planned bus service on new HOT lanes
- Increased transit (bus and commuter rail) could significantly improve service levels for all users along the corridor

Analysis concludes proposed tolls are not high enough on some segments



2010 Travel Speeds with Proposed Tolls

Southbound Peak Period (PM)

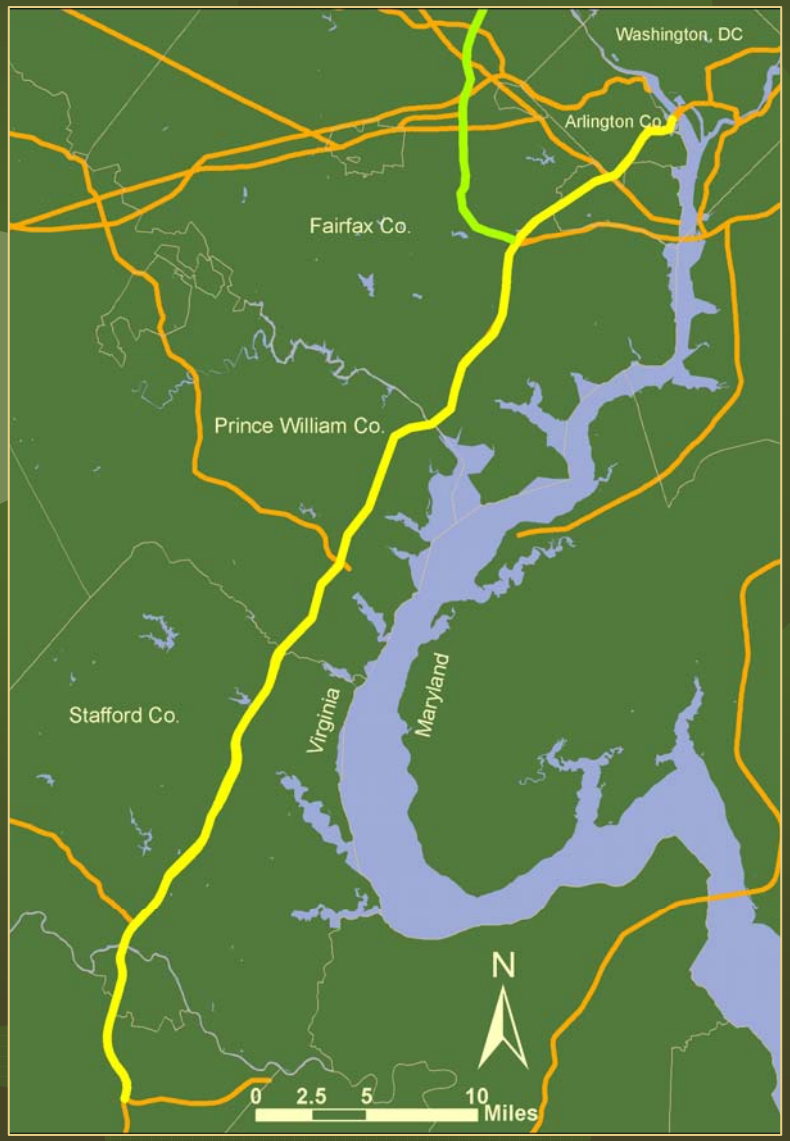


To ensure high level of service, tolls will have to vary by segment

Alternative Toll Scenario (per Mile)

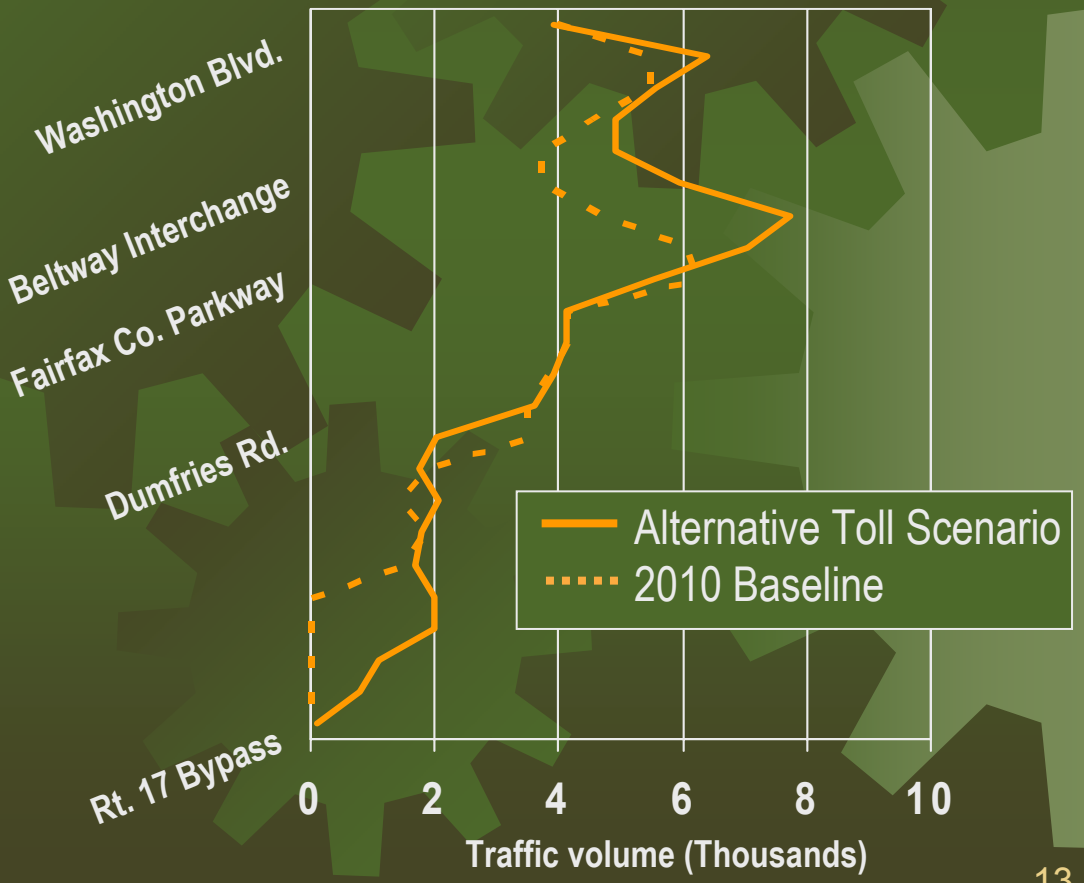
Segment	Southbound (PM Peak)	Northbound (AM Peak)
1	$1.10	$0.80
2	$1.00	$1.10
3	$1.60	$1.00
4	$0.80	$0.80
5	$0.23	$0.23

If high service level is maintained, HOV volumes will increase on some segments, relative to 2010 baseline

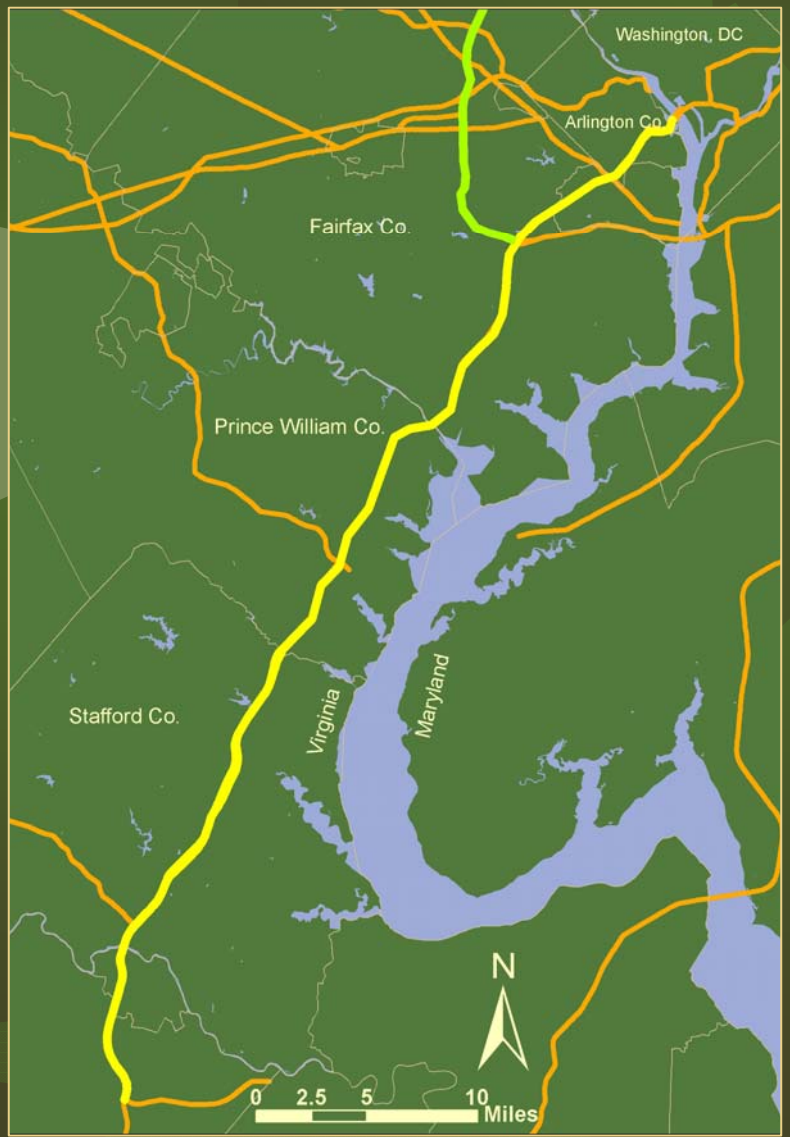


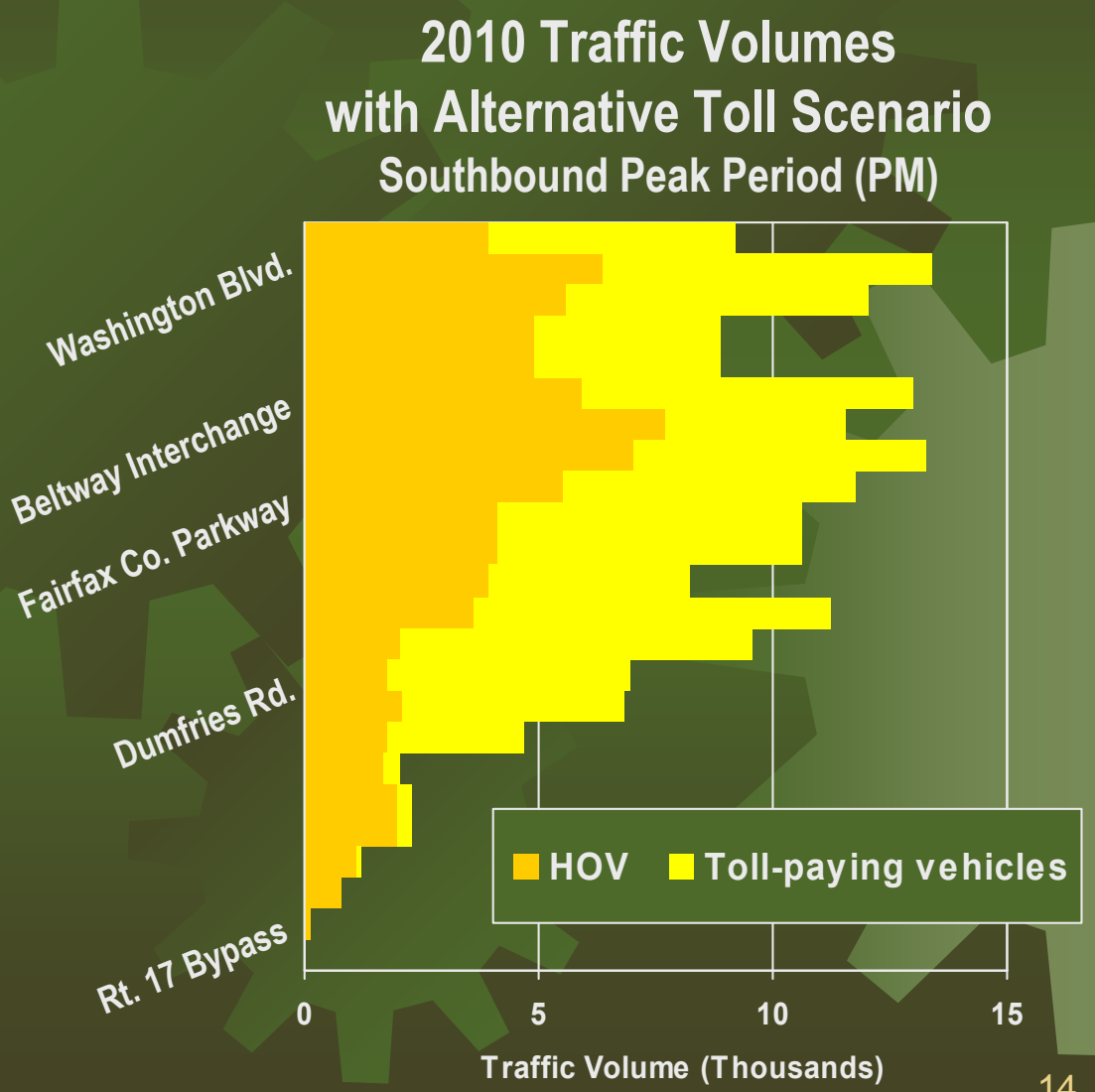
2010 HOV Traffic Volumes with Alternative Toll Scenario

Southbound Peak Period (PM)



Limited capacity for toll-paying vehicles at chokepoint south of Beltway

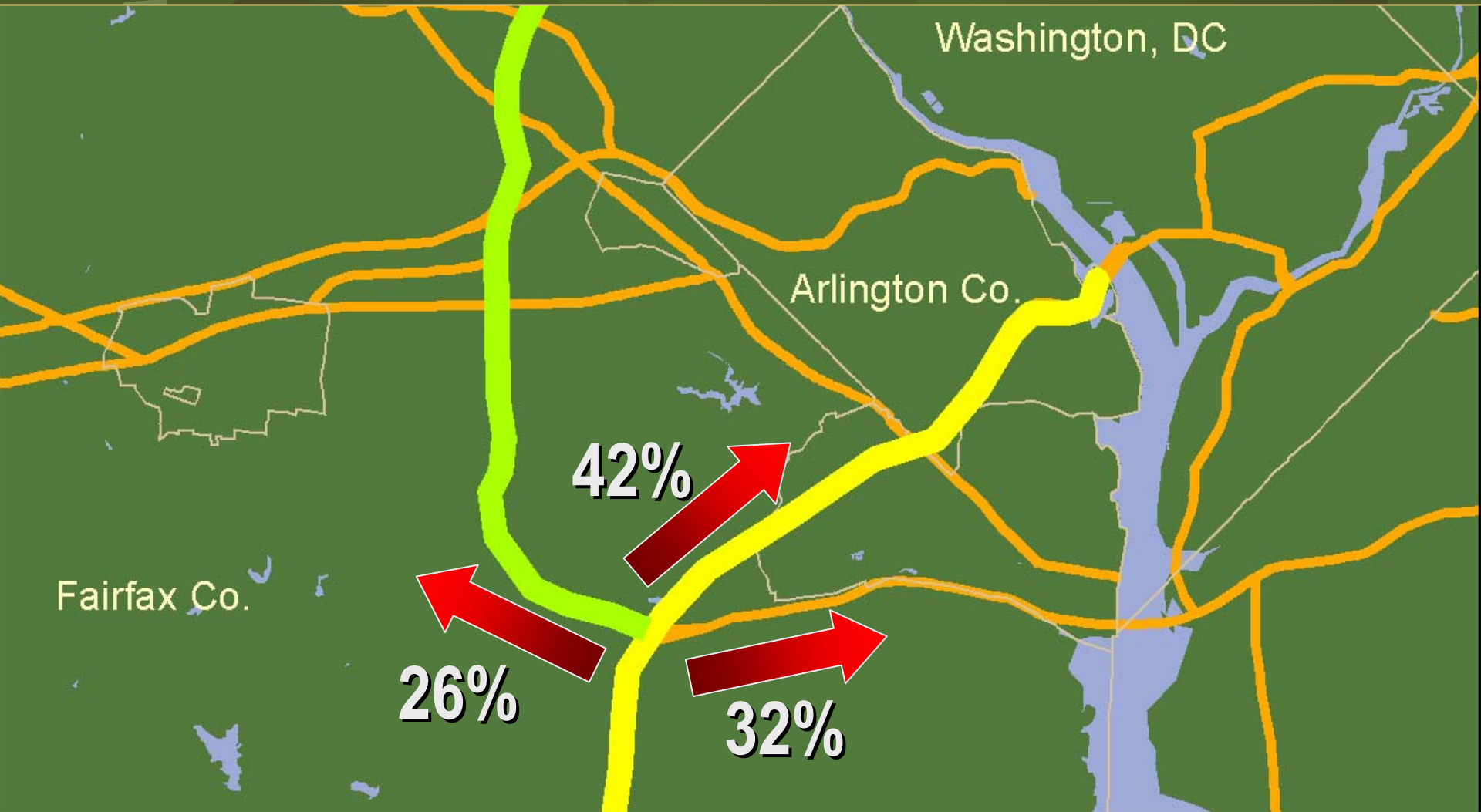




Synergy with the Capital Beltway

2010 HOT Lane Traffic Volumes

Northbound Peak Period (AM)



Another chokepoint occurs where HOT lanes end at 14th Street Bridge

- Northbound center span (2 lanes) on the 14th Street Bridge is already congested
- HOT lanes will add to the congestion

Observations

- **Tolls will have to be significantly higher** than proposed on certain segments to maintain high levels of service
- **Increased transit** (bus service on HOT lanes and commuter rail) should be studied as an integral part of the I-95/395 project
- **Chokepoint** south of the Beltway limits capacity for toll-paying vehicles
- HOT lanes add to **northbound congestion** on the 14th Street Bridge center span (2 lanes)

Observations

- Based on California's experience, drivers will pay an **additional premium for the reliability** of HOT lanes, and some will pay to use HOT lanes **even when conventional lanes are not congested**
- **Revenue implications** of alternative toll scenarios need to be studied for 2010 and future years
- Microsimulation modeling may be needed to examine capacity at **entry and exit points**